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ABSTRACT

Top-down and bottom-up theories have long dominated the field of reading. Recently, interactive models have been proposed by some researchers. One model, the interactive-compensatory model, hypothesizes that a deficiency in one processing area is compensated for by a relative strength in another area. The concept of multiple intelligences is one way to explain this phenomenon. From the multiple intelligences point of view, some reading instruction will incorporate music, some will take a more tactile and kinesthetic approach. Traditional approaches such as phonics instruction or whole language methods will certainly not be abandoned--some children do fit into the whole language category and some do learn better from an analytical/skills approach. (Contains 17 references.) (Author/RS)

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The Application of Multiple Intelligences Theory to Reading Instruction

by

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Running Head: MULTIPLE INTELLIGENCES

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Abstract

Top-down and bottom-up theories have long dominated the field of reading. Recently, interactive models have been proposed by some researchers. One model, the interactive-compensatory model, hypothesizes that a deficiency in one processing area is compensated for by a relative strength in another area. This paper suggests the concept of multiple intelligences as one way to explain this phenomenon. Implications of multiple intelligences theory for reading instruction are suggested.

The Application of Multiple Intelligences Theory to Reading Instruction

It is the nature of revolutions that excess is generally followed by balance. The normal course of a revolution is to "throw out" the establishment and replace it with a radical alternative. Certainly, this revolutionary activity is not foreign to the field of education. In fact, one might say that education has been a very fertile field for the novel and the alternative. True, one might argue that alternative approaches to the prevailing rationale in the domain of curriculum and instruction often do not tend to find their way into the teaching and thinking of many teachers, Still, education at all levels is effected to varying degrees by revolutionary thinking.

Probably, at the base of all of this change and counter-change are assumptions made about what children need to learn; and even more specifically, the issue of who should decide what they need to learn. It seems that there are two very different basic approaches to this question. One approach, which might be termed child centered, sees the child's personal needs and interests as the basis for curricular decisions. The other approach, which might

be termed establishment centered, assumes that the educational establishment knows what is best for the child.

Of course, there have been those who have made a plea for an approach which takes both the child's felt needs and concerns as well as the need for guidance from responsible others into consideration. Dewey (1934) proposed just such a point of departure in suggesting a philosophical base for educators.

It is the author's hope that this paper might offer an alternative to over-zealous revolutionary approaches to reading instruction. Dewey proposed an educational philosophy based on common sense, empirical evidence, human nature, and pragmatic utilitarianism, (ie. what works?). It is our hope to apply similar concerns to arrive at a common sense working model of the reading process.

As in basic educational philosophy, two points of view have come to dominate discussions about reading. One approach, which has come to be termed "top-down", has been suggested by such theorists as Goodman (1976) and Smith (1971). There is little need to elaborate on that approach here except to state the major features. It is rooted in some of

the research coming from the field of psycholinguistics; but certainly not supported by all of related evidence from that domain. It finds special support in schema theory and other cognitive concepts related to representational systems.

It assumes reading to be comprehension driven and attaches relatively less importance to "bottom-up" processes such as those associated with word recognition and decoding. Top-down theories see an effective reader as one who is less dependent on the text and much more dependent on language structure, story schemas, and prediction in reading.

This might be viewed as the revolutionary approach. The establishment view that it attempts to counter is the more traditional bottom-up view. Such theorists as Gough and Hillinger (1980) and others see reading as being skills and text driven. Processing is thought to take place at the letter and word level. The bottom-up camp is also interested in comprehension. The difference being that the various correlates of the reading process such as decoding, structural analysis, and word identification are seen as the foundation for word recognition which is in turn seen as the major prerequisite for

comprehension to occur.

Actually, the similarities between reading models and educational philosophy are rather apparent. Just as educational theory might divided into child and establishment centered camps, so also reading may be viewed as being primarily either something dependent on a child's internal knowledge of language or as being more dependent on forces outside of the child (ie. text, words, letters). And the newcomer in this debate might be viewed as the top-down camp which has taken on a revolutionary model for the promulgation of their point of view.

I would argue that we are in need of common sense. One of the problems is that much of the evidence for a whole language curriculum has come from qualitative child watching, whereas the evidence for bottom-up conceptions is largely derived from quantitative methods. Even when there is an attempt to meet on common ground, the debate has raged. As a case in point, consider the study of context on word recognition from Goodman (1965). A replication of the study by Nicholson (1991) brings the results into question. And further, as Nicholson reports, some voices from the great bastions of whole language,

such as New Zealand, are beginning to question the effectiveness of the approach. What is needed is an approach that take into account the work of psycholinguists who have shown the importance of contextualization, schema, and the search for meaning in the processing of language and the evidence, which is considerable (Adams, 1990), that bottom-up processes are of paramount importance in processing text.

Such a model was first suggested by Rumelhart (1977). In the interactive model of reading, processing occurs at all levels. By spreading activation text is analyzed in bottom-up ways involving letters, words, sounds, and feature analysis. Text is also processed in terms of meaning. The reader comes to the text with a series of expectations but still utilizes text-driven processes such as orthographic features, graphophonemic information, and automaticity to process reading material. As to which system is operating at a given time, the question is moot. Bottom-up activity activates top-down processing which in turn relies on more bottom-up processes to confirm and predict. The whole interactive scenario is carefully illustrated by Adams (1990).

In an attempt to account for differences in word recognition methods, Stanovich (1980) has proposed the interactive-compensatory model of the reading process. Research on the model has in general supported its major components (Stanovich, 1984; Yoon & Goetz 1994; Stanovich, Nathan, West & Vala Rossi, 1985; Stanovich, Cunningham & Feeman, 1984; Nicholson, 1991; Goldsmith-Phillips, 1989). The model assumes that a deficiency in one of the interactive processes is compensated for by a relative strength in another process. In particular, and in contrast to the theories of top-down, whole language proponents,, the interactive-compensatory researchers have found that better readers actually rely more heavily on surface features of the text in processing than on semantic and syntactic processes. In the face of the increasing dependence on semantic and syntactical processes nescessary for word recocnition, less attention as devoted to overall comprehension, while effective readers recognize words with greater automaticity and are able to give more attention to global comprehension.

The evidence for the interactive-compensatory model might seem to suggest that reading should be

taught on the basis of bottom-up processes. If better readers utilize bottom-up processes in reading more than top-down processes, why not make everyone a good reader by teaching more phonics, structural analysis, feature analysis, etc.? And it is at this juncture that we need to exercise caution. First of all, we must not forget the distinction between correlation and causality. Secondly, there a better explanation for differences in processing than just to attribute reading failure to dis-use of bottom-up processes. This explanation is found in the theory of multiple intelligences.

The major theorist in the field of multiple intelligences in Howard Gardner. In two major works (Gardner, 1983, 1993) he sets forth the theory and implication of the theory for instruction.

Gardner proposes that the psychological/educational community has been in error in the understanding and measurement of intelligence. Most intelligence tests combine verbal and quantitative measures to arrive at a global measure of an individual's intelligence level. Gardner suggests that intelligence has implications quite apart from school success. Gardner sees intelligence as the

ability to solve problems or create products that are valued in a cultural, anthropological, or societal sense. The theory is far more complex and analytical than learning styles theories such as that proposed by Carbo (1986). The evidence for Gardner's theory is rooted in research and theory regarding human development, brain damage, evolution, anthropology, genetics, and neuropsychology. Gardner identifies seven intelligences. Some of the criteria used to establish an intelligence are:

1. The extent that a given faculty can be localized in the brain as evident in cases of brain damage.
2. The prevalence of a given intelligence in cases of exceptionality such as prodigies and idiots savants
3. The existence of the necessary information processing operations to support a given intelligence.
4. A distinctive developmental history of the intelligence
5. Location of related abilities in other species.
6. Evidence from empirical psychological procedures.
7. Information from standardized tests.
8. Some sort of symbol system associated with the

intelligence.

Seven intelligences have been proposed. These are basic abilities influenced by nature and nurture. In the literature related to multiple intelligences, each of the seven have been carefully evaluated in terms of the eight criteria outlined above. The seven intelligences are as follows:

1. Musical intelligence.
2. Bodily-kinesthetic intelligence.
3. Logical-mathematical intelligence.
4. Linguistic intelligence.
5. Spatial intelligence
6. Interpersonal intelligence
7. Intrapersonal intelligence.

There is a rather subtle difference between multiple intelligences theory and the concept of learning styles; a difference that it is important to note. Most of learning styles theory has concerned itself with environmental factors and their adjustment to enhance learning. While the application of the theory of multiple intelligences certainly does suggest pedagogical directions, it is much more encompassing in outlook. The application of multiple intelligences concepts suggests a whole new way of looking at people.

People really are different; different at a deep down neuroprocessing level. While learning styles theory seems to suggest improvements in instructional approaches, the idea of multiple intelligences explains school success and the failure of contemporary approaches at a much more deeply ontological level. In short, the theory of multiple intelligences, if accepted, demands an entirely different outlook.

How could this paradigm of ability be used as part of a model of reading-let's say the interactive-compensatory model in particular? It fits quite nicely here. Instead of viewing differences in terms of better and worse, we now see them in terms of actual differences and inherent strengths. Top-down processors who rely heavily on context can be explained in terms linguistic intelligence. They are those who rely on the natural structure of language in approaching text. Logical-mathematical and spatial intelligences would seem to lend themselves well to bottom-up processing. These readers are analytical rather than global and oriented toward spatial configurations. One reader isn't good and another poor. They are just different kinds of processors.

Musical intelligence refers to skill with tone,

rhythm pitch, etc. Those with musical intelligence would excel in an academic program which strongly emphasizes music as the means of communication. Clearly, reading instruction for these folks will capitalize on this ability and involve growing readers in musically oriented instruction. Songs, the rhythm of language and choral reading activities will take center stage.

For those with ability in bodily-kinesthetic tasks, the mode of communication will certainly involve the acting out of stories, use of the muscle groups in writing, and the involvement of students in touch and sensation experiences.

For those with logical-mathematical or spatial intelligence, learning will take a much more analytic or perhaps even synthetic approach to dealing with sound and print. Teaching will tend to be more text oriented and although this intelligence tends to be more non-verbal, an analytic approach will probably be effective in the teaching of decoding and comprehension.

Those of a more linguistic bent, will likely find a whole language, top-down approach to be effective. It would appear from studies of the

interactive-compensatory model that many "so-called" poor readers might fit into this context. The use of disconnected phonics instruction, while certainly effective with other intelligences, is much less effective here.

Intrapersonal and interpersonal intelligences define skills useful in social or self perception. Certainly an interpersonal type would do well in a cooperative learning situation. Those with intelligence of a more intrapersonal nature will probably do best in an environment which allows for individual work and reflective journal keeping.

One thing that becomes immediately apparent from this perspective is that both of the extreme ways of viewing reading must surely be wrong. There cannot be one and only one way to look at the reading process because there are so many different ways to process information.

From a multiple intelligences point of view, some teaching will incorporate music. Some will take a more tactile and kinesthetic approach. The traditional approaches such as phonics instruction or whole language methods will certainly not be abandoned; for truly some children do fit into the

Goodman/Smith category and some truly do learn better from an analytical/skills approach.

What we need is an authentic evaluation process that is both standardized and anecdotal. We will not be able to make snap decisions about children based on a 20 minute assessment. We will always be refining and fine tuning our reading instruction. While classroom instruction will utilize many effective methods for teaching, grouping will be made more on the basis of intelligence than ability. It's a tall order and if this model is to be effectively applied to reading instruction pedagogical concerns must be addressed.

We started talking about child-centered and establishment centered approaches to education. It was stated that common sense dictated a different way, a way that kept the child in the center while still not abandoning the wisdom of her elders. Incorporating multiple intelligences theory into our understanding of the reading process could be just such an approach; child centered, research centered, and effective; a revolution where the child is the winner and no one the loser.

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